

**Table S1****Parameter estimates of full model**

<b>Parameter (unit)</b>	<b>Description</b>	<b>Estimate</b>	<b>SE<sup>a</sup></b>	<b>RSE<sup>b</sup></b>
Ktr (1/day)	Transit rate constant explaining delay in onset	0.0113	-	0.43
$\alpha$ (1/(day*ng/mL))	Drug effect parameter	0.0000726	-	0.51
$\beta$	Weibul function parameter	0.743	-	0.095
$\theta_{\text{age}}$ (1/years)	Effect of age on hazard	-0.0012	0.0076	
$\theta_{\text{bwt}}$ (1/kg)	Effect of body weight on hazard	0.0135	0.0050	
$\theta_{\text{sex}}$	Effect of sex (female vs male) on hazard	-0.104	0.19	
$\theta_{\text{ppn}}$	Effect of prior PN on hazard	0.464	0.17	
$\theta_{\text{diab}}$	Effect of diabetes on hazard	0.0966	0.21	
$\theta_{\text{chemo}}$	Effect of prior chemo on hazard	-0.130	0.19	
$\theta_{\text{ritux}}$	Effect of concomitant rituximab treatment on hazard	-0.293	0.19	
$\theta_{\text{ALBU}}$ (g/dL)	Effect of albumin on hazard	0.178	0.15	
$\theta_{\text{ECOG}}$	Effect of ECOG status (>0) on hazard	0.064	0.17	

RSE, relative standard error; SE, standard error; BWT, body weight; PN, peripheral neuropathy.

a. Covariates' effect, are estimated in the normal domain and can be negative, thus SE is presented.

b. Model parameters  $\alpha$ ,  $\beta$ , Ktr are shown on normal scale, but were estimated in the log domain. The RSE presented is the SE of the logged parameter which is approximately equal to the RSE of the parameter on the normal domain.

**Table S2****Drug target, Cancer type and key covariate summary of the trials included in the analysis.**

Studies	ADCs	Phase	Target	Cancer type	N data	Gender (% Female)	BWT (mean, SD)	Prior PN (%)	Dose regimen (IV)	Ref er- ence
<b>DCT4862</b>	Pinatuzumab vedotin	I	CD22	NHL, CLL	91	44	78	32	0.1 - 3.2 mg/kg q3w	<sup>1</sup>
<b>DCS4968G</b>	Polatuzumab vedotin	I	CD79b	NHL, CLL	95	29	78	17	0.1 - 2.4 mg/kg q3w	<sup>2</sup>
<b>GO27935</b>	DEDN6526A	I	ETBR	Melanoma	52	33	80	23	0.3 -2.8 mg/kg q3w	<sup>3</sup>
<b>DMO4993G</b>	DMOT4039A	I	MsLN	Ovarian, Pancreatic	71	70	71	48	0.2 -2.8 mg/kg q3w; 0.8 – 1.2 mg/kg qw	<sup>4</sup>
<b>DGR4980G</b>	DMUC5754A	I	MUC16	Ovarian, Pancreatic	77	92	73	47	0.3 - 3.2 mg/kg q3w; 0.8 –1.6 mg/kg qw	<sup>5</sup>
<b>DNB4987G</b>	DNIB0600A	I	Napi2b	Ovarian, Lung	75	73	70	37	0.2 - 2.8 mg/kg q3w	<sup>6</sup>
<b>DST4964G</b>	DSTP3086S	I	Stear1	Prostate	68	0	86	40	0.3 -2.8 mg/kg q3w; 0.8 -1 mg/kg qw	<sup>7</sup>
<b>FRF4998g</b>	DFRF4539A	I	FcRH5	Multiple Myeloma	23	48	87	61	0.3 - 2.4 mg/kg q3w	<sup>8</sup>
<b>GO27834</b>	Pinatuzumab vedotin, Polatuzumab vedotin	II	CD22, CD79b	NHL	142	42	81	44	1.8 - 2.4 mg/kg q3w	-

ADCS: antibody drug conjugates; PK: pharmacokinetics; q3w: once every three weeks; qw: once every week; NHL: non-Hodgkin lymphoma; CLL: chronic lymphocytic leukemia; IV: intravenous; X, target not provided.

## References

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3. Li C, *et al.* Clinical Pharmacokinetics of DEDN6526A, an Anti-Endothelin B Receptor (ETBR) Antibody- Drug Conjugate (ADC) in Patients (pts) with Metastatic or Unresectable Melanoma: Results from a First-in-Human Phase I Study. American Association of Pharmaceutical Scientists National Biotechnology Conference; 2015; Orlando, Florida; 2015.
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5. Liu JF, *et al.* Phase I study of safety and pharmacokinetics of the anti-MUC16 antibody-drug conjugate DMUC5754A in patients with platinum-resistant ovarian cancer or unresectable pancreatic cancer. *Ann Oncol* **27** 2124-2130. (2016)
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